

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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| REC'D 25 JUL 2005 |
| WIPO PCT |

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| Applicant's or agent's file reference RM-117(PCT) (291448- | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/US04/21810 | International filing date (day/month/year) 08 July 2004 (08.07.2004) | Priority date (day/month/year) 03 September 2003 (03.09.2003) |
| International Patent Classification (IPC) or national classification and IPC IPC(7): B41F 17/08; B41J 2/01 and US Cl.: 101/38.1; 347/103 | | |
| Applicant STOLLE MACHINERY COMPANY, LLC. | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

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| Date of submission of the demand 01 April 2005 (01.04.2005) | Date of completion of this report 22 June 2005 (22.06.2005) |
| Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/ US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230 | Authorized officer Ren L. Yan Telephone No. 703-308-0956 <div style="text-align: right;"> DEBORAH A. THOMAS PARALEGAL SPECIALIST GROUP 1000 <i>[Signature]</i> </div> |

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US04/21810

I. Basis of the report**1. With regard to the elements of the international application:***

- ☐ the international application as originally filed.
- ☒ the description:
pages 1-8 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.
- ☒ the claims:
pages NONE, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages 9-15, filed with the demand
pages NONE, filed with the letter of _____.
- ☒ the drawings:
pages 1 and 2, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.
- ☐ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages NONE
- ☒ the claims, Nos. 16-20
- ☐ the drawings, sheets/fig NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US04/21810

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

| | | |
|-------------------------------|------------------------------|-----|
| Novelty (N) | Claims <u>1-15 and 21-35</u> | YES |
| | Claims <u>NONE</u> | NO |
| Inventive Step (IS) | Claims <u>1-15 and 21-35</u> | YES |
| | Claims <u>NONE</u> | NO |
| Industrial Applicability (IA) | Claims <u>1-15 and 21-35</u> | YES |
| | Claims <u>NONE</u> | NO |

2. CITATIONS AND EXPLANATIONS

Claims 1-15 and 21-35 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the combination structure of a digital printing apparatus for printing on cans including particularly the use of at least one digitally controlled print head to provide non-contact printing of color patterns to the blanket sections which in turn transfer the color patterns to the cans that subsequently brought in contact with the blanket sections.

----- NEW CITATIONS -----

WHAT IS CLAIMED IS:

1. A digital printing apparatus for decorating cans, comprising:

a moveable blanket carrier having an exterior on which a printing blanket is disposed, the printing blanket having a plurality of blanket sections along the exterior of the carrier, with each blanket section being so placed along the carrier and being of such length as to transfer ink on the blanket section to a respective can to be printed which moves in contact with the respective blanket section;

at least one digitally controlled print head operative to print at least a single color in at least a single pattern and the print head is directed so as to provide non-contact printing of a blanket section moved past the print head by the blanket carrier;

a can transport device for transporting cans to be printed by contact with respective blanket sections of the blanket carrier after the print head has printed the blanket section, the transport device including a plurality of supports for the cans to be printed, the supports being spaced apart on the transport device, the transport device being so shaped and being so positioned with respect to the blanket carrier as to move each can supported thereon in turn past a respective blanket section and in contact with the blanket sections sufficiently for enabling transfer of an ink image on the respective blanket section to the respective can then in contact with the blanket section, the transport device then transporting each can printed by a respective blanket section away from the blanket carrier for further processing.

2. The printing apparatus of claim 1, wherein the carrier comprises a blanket cylinder and the movement of the carrier comprises rotation thereof.

3. The printing apparatus of claim 2, further comprising a plurality of the digitally controlled print heads spaced apart along the carrier and respectively positioned and aimed at the blanket cylinder, so that the plurality of print heads are operable to print a plurality of the blanket sections, as a blanket section to be printed by a respective print head passes the respective print head.

4. The printing apparatus of claim 3, further comprising a computer control connected with the print heads and with the blanket carrier for sensing the position of the blanket carrier and the blanket sections thereon and for selectively operating each print head to print the blanket section then passing the print head.

5. The printing apparatus of claim 3, further comprising a varnishing device positioned after the contact between the cans being printed and the blanket cylinder for varnishing the cans after printing.

6. The printing apparatus of claim 5, further comprising a transfer device for transferring the cans off the transport device after varnishing.

7. The printing apparatus of claim 3, wherein the print heads are ink jet print heads.

8. The printing apparatus of claim 7, further comprising an ink reservoir connected with the print heads for supplying inks to the print heads.

9. The printing apparatus of claim 1, further comprising a plurality of the digitally controlled print heads spaced apart along the carrier and respectively positioned and aimed at the blanket carrier, so that the plurality of print heads are operable to print a plurality of the blanket sections, as a blanket section to be printed by a respective print head passes the respective print head.

10. The printing apparatus of claim 9, further comprising a computer control connected with the print heads and with the blanket carrier for sensing the position of the blanket carrier and the blanket sections thereon and for selectively operating each print head to print the blanket section then passing the print head.

11. The printing apparatus of claim 9, wherein the print heads are ink jet print heads.

12. The printing apparatus of claim 11, further comprising an ink reservoir connected with the print heads for supplying inks to the print heads.

13. The printing apparatus of claim 9, further comprising a transfer device for transferring cans off the transport device after printing by contact with the blanket section.

14. The printing apparatus of claim 9, further comprising a varnishing device positioned after the contact between the cans being printed and the blanket carrier for varnishing the cans [objects] after printing.

15. The printing apparatus of claim 14, further comprising a transfer device for transferring the cans off the transport device after varnishing.

21. A can decorating apparatus comprising:

a moveable blanket carrier having an exterior on which a printing blanket is disposed, the printing blanket having a plurality of blanket sections along the exterior of the carrier extending outwardly therefrom, with each blanket section being so placed along the carrier and being of such length as to transfer ink on the blanket section to a respective can to be decorated when it moves in contact with the respective blanket section; at least one digitally controlled print head operative to print at least a single color in at least a single pattern, the print head being configured and positioned to provide non-contact printing of a blanket section moved past the print head by the blanket carrier; a can transport device for transporting cans to be printed by contact with respective blanket sections of the blanket carrier after the print head has printed the blanket section, the transport device including a plurality of can supports, the can supports being spaced apart on the transport device, the transport device being so shaped and being so positioned with respect to the blanket carrier as to move each object supported thereon in turn past a respective blanket section and in contact with the blanket sections sufficiently for enabling transfer of an ink image on the respective blanket section to the respective can then in contact with the blanket section, the transport device then transporting each can printed by a respective blanket section away from the blanket carrier for further processing.

22. The can decorating apparatus of claim 21, wherein the carrier comprises a blanket cylinder and the movement of the carrier comprises rotation thereof.

23. The can decorating apparatus of claim 22, further comprising a plurality of the digitally controlled print heads spaced apart along the carrier and respectively positioned and aimed at the blanket cylinder, so that the plurality of print heads are operable to print a plurality of the blanket sections, as a blanket section to be printed by a respective print head passes the respective print head.

24. The can decorating apparatus of claim 23, further comprising a computer control connected with the print heads and with the blanket carrier for sensing the position of the blanket carrier and the blanket sections thereon and for selectively operating each print head to print the blanket section then passing the print head.

25. The can decorating apparatus of claim 23, further comprising a varnishing device positioned after the contact between the objects being printed and the blanket cylinder for varnishing the objects after printing.

26. The can decorating apparatus of claim 25, further comprising a transfer device for transferring the objects off the transport device after varnishing.

27. The can decorating apparatus of claim 23, wherein the print heads are ink jet print heads.

28. The can decorating apparatus of claim 27, further comprising an ink reservoir connected with the print heads for supplying inks to the print heads.

29. The can decorating apparatus of claim 21, further comprising a plurality of the digitally controlled print heads spaced apart along the carrier and respectively positioned and aimed at the blanket carrier, so that the plurality of print heads are operable to print a plurality of the blanket sections, as a blanket section to be printed by a respective print head passes the respective print head.

30. The can decorating apparatus of claim 29, further comprising a computer control connected with the print heads and with the blanket carrier for sensing the position of the blanket carrier and the blanket sections thereon and for selectively operating each print head to print the blanket section then passing the print head.

31. The can decorating apparatus of claim 29, wherein the print heads are ink jet print heads.

32. The can decorating apparatus of claim 31, further comprising an ink reservoir connected with the print heads for supplying inks to the print heads.

33. The can decorating apparatus of claim 29, further comprising a transfer device for transferring cans off the transport device after printing by contact with the blanket section.

34. The can decorating apparatus of claim 29, further comprising a varnishing device positioned after the contact between the cans being printed and the blanket carrier for varnishing the cans after printing.

35. The can decorating apparatus of claim 34, further comprising a transfer device for transferring the cans off the transport device after varnishing.